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ABSTRACT

Like most two-year colleges, Chipola Junior College has had to respond quickly to the impact of the microcomputer revolution. A demanding clientele of students and community members, faculty and staff unprepared for microcomputer technology, and limited equipment resources dictated the rules of change. After it was determined that computer literacy efforts would emphasize a practical understanding of computers and applications software, a series of one credit-hour courses was developed on the use of the microcomputer as a personal or professional tool for school, home, or work. Most of the time in class was devoted to hands-on activities in a microcomputer laboratory. The first course developed, "Microcomputer Literacy: An Introduction," was designed for individuals with no previous computer experience. Additional courses were developed in word processing, spread sheeting, programming, and using integrated software packages. The one-hour computer literacy course was also chosen as the basis for a systematic training program for the vast majority of the faculty who were not computer literate. Participating faculty received a stipend for taking the basic computer literacy course and an additional independent study course focusing on discipline-based competence. The final phase of Chipola's computer literacy training efforts was a structured inservice course for career service personnel. Evaluations conducted for each of the program components revealed that the emphasis on short applications courses worked well for the college and its constituencies. (LAL)

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A Community College Response to a Campus-Wide Need for Computer Literacy

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A Community College Response to a Campus-Wide Need for Computer Literacy.

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Computer literacy is a popular term. Teachers, legislators, futurists, students and parents are all very adamant that we need computer literacy to take our country into the next century. Arthur Melmed (1984) argues that the term has "...become a metaphor in the public mind for American success." Nowhere is the evidence of this belief greater than in the constituencies of the community college. Each year the entry level positions in electronics, business, secretarial science and even auto mechanics require more sophistication with microcomputer technology. Students getting the first two years of a baccalaureate degree come to the community college expecting "computer courses," some of which are required by the universities. Adults in the community who have walked into the office to find a computer on their desks plead for help. Everyone, it seems, wants to get in on the computer revolution.

The intense local and national interest in computer literacy training created a major problem for Chipola Junior College. Besides there being virtually no equipment on which to offer computer literacy training, there was a very stable and mature faculty who had little or no knowledge of microcomputer technology. Even the administrative activities of the college were far less "computerized" than most other community colleges in the state. When a new administration addressed this situation two years ago, the question became, "How can the college respond to the immediate need for computer courses for our constituency and at the same time develop a computer literate college faculty and staff?"

Phase I: Computer Literacy for the Students and the Community

When the college addressed this issue, there were two major approaches to computer literacy being discussed on the national level. The first, best exemplified by Arthur Luehrman (1984), proposed that everyone needed to have competence in computer programming to be computer literate. The second approach, emerging from the Madison Avenue marketing strategies of the microcomputer hardware and software companies, proposed that one could be computer literate by developing competence in the use of applications software with little or no knowledge of programming. Chipola Junior College, like other schools in the country (Turner, 1984), had to decide which of these two perspectives it would use in responding to the computer literacy issue. Listening to the requests of those who were in need of computer knowledge made the decision a relatively easy one. The computer literacy efforts for students, faculty and staff would emphasize a practical understanding of computers and applications software.

At this point, it is important to make a distinction between seve different levels of computer knowledge that have been discussed in the literature (Turner, 1984): 1) computer literacy, the most basic knowledge of computers that includes some skills in computer use, 2) computer competency, the ability to use a computer as a tool in one's particular field, and 3) computer proficiency, the level of knowledge that characterizes the professional in the field. The computer courses that were already being offered by the college were going into too much depth for most people who were requesting "computer courses." Consequently, there was a need for computer literacy courses that were different from those that were already being offered.

As result, a series of one credit-hour courses was developed to emphasize the use

of the microcomputer as a personal or professional tool for school, home, or work. In each case, the courses involved about 13 of the 15 hours of instruction as hands-on activities in a microcomputer lab. Although the courses were meant to be academically respectable, they were structured to allow individual variation in the types of projects that could be used to satisfy requirements. Adults and freshman in college could take the same course and learn how to use the computers for different purposes. Enrollment in the courses was to be held to a maximum of fifteen students each, or about two persons per microcomputer.

The first course developed, "Microcomputer Literacy: An Introduction," was designed as a prerequisite for those individuals with no previous computer experience. The students would start working on the microcomputers in the first hour of class, familiarizing themselves with the keyboard and editing features of the machines so they would not have time to build up anxiety about working with computers. The course content included a brief history of computers, relevant terminology, instruction in the use of all system commands and a substantial overview of wordprocessing and spreadsheeting software (Dellow, 1984). At least five hours of class time would be spent on working with the wordprocessing software and a similar amount of time on the electronic spreadsheeting activities. Approximately one hour would be spent on programming. As an experiment, the course was recently offered as an independent study course.

Additional one credit-hour courses were developed in wordprocessing, spreadsheeting, programming, and in using integrated software packages. In each of these courses the emphasis was not on memorizing the attributes of the specific software package being used, but rather on the potential of the software as a representative of a type of software. Students were encouraged to see the

flexibility and creative opportunities for problem solving with each of the generic programs.

Assessment of the Applications Courses Approach to Computer Literacy

The purpose of the one credit-hour applications courses was to develop an immediate response to the computer literacy needs of the college and community and ,therefore, establish the fact that the college was "on the move." The approach seems to have worked. Since the first offering of the courses (spring semester, 1983), a total of 593 different people enrolled in the introductory computer literacy course. This figure represents twenty-five percent of all the different people who have attended the college during the two-year period. In analyzing the enrollments in the introductory course, it was determined that 58 percent of the enrollment was comprised of our regular college population. Another 31 percent of the class enrollees were classified as special students, a classification that includes people from the community who are not pursuing a degree. The remaining 11 percent of the enrollment was made up of Chipola Junior College faculty and career service employees.

When one out of every four students attending the college enroll in a course that is not required, the course must be responding to a need. It is doubtful whether this many people would have been served by the college if programming had been emphasized or if the content of the courses had been combined into three credit-hour blocks.

As a result of the college being able to provide a fast and effective response to our constituencies' needs, two summer programs in cooperation with the local

schools, offered computer literacy and robotics training for gifted high school students. The fact that the college had the equipment, the software and the interest in computer literacy helped to provide a fertile atmosphere for these programs.

Phase II: Computer Literacy Inservice for Faculty

Since the one-hour computer literacy course was working very well for our community and student needs, it was decided that it might serve as the basis for a systematic training program for the vast majority of those faculty who were not computer literate.

Faculty were offered the opportunity to participate in an inservice where they would receive a stipend of $300, plus benefits, for 30 hours of computer training. The thirty hours would be offered in two one-credit-hour courses, the basic computer literacy course that our students had been taking and another independent study course which would allow faculty members to develop competence in their own disciplines. This approach would let faculty develop the same knowledge and skillbase that was being developed in the student body. It would also provide participating faculty with the first level of computer knowledge (computer literacy) and allow some faculty to move toward computer competence in their own fields.

Thirty-five faculty, sixty-seven percent of those eligible, signed up for the initial inservice. Because payment was involved, the inservice had to take place outside regular working hours. Individual sections of the first computer

literacy course were taught by two faculty colleagues. Five other faculty members who were computer literate served as tutors and consultants to their colleagues. A few individuals could not arrange their schedules to attend these sections and either enrolled in a regularly scheduled section of the course or took it by independent study.

When individuals finished the first course, they then enrolled for a course entitled, "Workshop in Microcomputer Applications". This portion of the inservice required that faculty contract to spend fifteen hours developing additional competency in working with software relevant to their disciplines or individual professional needs. Some faculty developed additional competence in wordprocessing and spreadsheeting applications. Others reviewed software packages for possible use in their courses. One or two decided to learn more about programming.

A total of thirty faculty members, 85 percent of those who enrolled, have completed the two courses six months after they were first offered.

Evaluation of the Faculty Inservice

An evaluation form was distributed to those faculty who had completed their thirty hours (2 credits) of computer literacy inservice. Of the thirty faculty completing the inservice (85% of those enrolling), twenty-two or 73 percent anonymously completed evaluation forms. The evaluation of the inservice was completed from three to five months after the actual inservice.

In drawing conclusions about the effectiveness of the computer literacy inservice activity, it is necessary to review both the faculty perceptions on the survey

and an evidence of actual behavioral changes reported by various sources across campus.

The primary purpose of the evaluation survey was to assess the respondents' perceived changes in their use of microcomputers in several different areas. Table I summarizes the data concerning perceived changes.

TABLE I
Faculty perceptions of changes in computer usage as a result of a thirty hour inservice program.

	As a result of the computer literacy inservice the respondents (N=30) reported:	
	An increase in the use of micros for:	An increase to regular or "near-regular" use
Wordprocessing	86%	36%
Spreadsheeting	32%	14%
Review of software	68%	32%
Request/order software	54%	23%
Assigned students work on software	64%	23%

In reviewing Table I, it is apparent that of the two administrative applications of microcomputers, wordprocessing and spreadsheeting, the respondents had increased their use of wordprocessing the most. Eighty-six percent of the respondents indicated they had increased their use of the microcomputers for wordprocessing. A total of 14 of the respondents (36%) indicated their use of microcomputers had become "regular" or "near regular" for this purpose.

This seems consistent with the observations of division chairpersons with regard to the memos and course materials that are being circulated in dot-matrix form. Since all of the secretarial wordprocessing is done on letter-quality printers, the course syllabi, outlines, and exams in dot-matrix format were faculty

produced.

Although one-third of the faculty respondents had increased their use of spreadsheeting since the inservice (32%), it was apparent from the data that the spreadsheeting was not being utilized as extensively as wordprocessing. The three faculty who did indicate a regular usage of spreadsheets after the inservice indicated they were keeping their gradebooks using the spreadsheeting software available.

The next three questions on the survey were designed to elicit the respondents' perceptions about how their behavior had changed with respect to the reviewing, requesting/ordering and assigning student work on educational software. A little over two-thirds of the group said they were reviewing more educational software after their inservice; about one-third of the group indicated they were doing this on a regular or near-regular basis. A smaller percentage (54%) believed they were requesting or ordering more software for instructional use, with 23 percent doing so more regularly. When it came to assigning students work with instructional software, again two-thirds (64%) of the group indicated an increase. About one-quarter (23%) indicated they were regularly assigning students work on microcomputers.

If we were to summarize the findings from these last three questions, it seems appropriate to generalize and say that twenty to twenty-five percent of the faculty members who participated in the inservice have significantly increased their use of microcomputers in their instructional activities, from their perspective.

In reviewing the responses to the last question about the overall effectiveness of the inservice program, 68% of the respondents considered the computer literacy inservice "valuable" or "extremely valuable." The remaining 32% were apparently undecided. This response pattern would seem to be consistent with the comments made by faculty at the time of the inservice. Most faculty participants spontaneously shared with the authors (and many others) the positive experience they were having with the computer literacy inservice. There seemed to be a feeling of "support" in taking the course with colleagues who could admit they knew little about computers. Participants generally seemed to feel free to open up and share the fact that computers were a whole new world to them.

At the beginning of the inservice it was assumed that most, if not all, of the faculty would acquire the first level of computer knowledge, computer literacy, and many would progress to a greater degree of computer competence in their own disciplines. The eighty-five percent of the participants who completed the inservice demonstrated their competence at the first level. In reviewing the logs of the microcomputer labs and talking with chairpersons, it seems warranted to assume that twenty to twenty-five percent of the faculcy participants have moved beyond the basic level of computer literacy to a greater degree of computer competency in their own fields. These results seem to suggest the program was a success. The inservice has raised the overall level of computer literacy on campus and has move some faculty into the realm of regular computer users.

In querying those faculty members who are apparently not taking advantage of the microcomputer resources on campus, as judged by observation and chairperson assessment, a number of consistent themes emerged:

-the equipment in the labs is too far away from offices and classrooms
-it takes too much time to review software

-the software available is irrelevant or of low quality.

Each of these represent real problems that will continue to require attention. Unfortunately, the issue of quality software for higher education is an issue that is beyond our control and will take several years to correct (Bork, 1984). An important question may be, what percentage of the faculty using computers is both instructionaly and financially the most appropriate? Of course the answer to this question would vary from discipline to discipline; but, if we believe the instructional design theorists, we need to continue to offer a variety of instructional approaches on our campuses. Some faculty will undoubtedly never feel comfortable with the use of microcomputers.

Phase III: Inservice for Career Service Personnel

When the faculty inservice was announced, a vocal group of career service personnel began to make an impassioned plea for "equal treatment." Almost every office on campus had a microcomputer available and the career service personnel were utilizing the equipment extensively. It became apparent to the administration that the college could build upon the already high morale of the career service employees and increase the usage of the microcomputer equipment by offering an inservice program similar to that provided for the faculty. Consequently, the career service employees were offered a stipend of $200, plus benefits, to complete a structured computer literacy inservice. The one credit-hour introduction to microcomputer literacy course would serve as the basic component of training. As with the faculty, the training would be offered after regular working hours.

The primary purposes of the inservice would be fourfold: (1) to increase the

general level of computer literacy for all career service employees, (2) to increase the capabilities of those already using microcomputers in their jobs, (3) to prepare certain non-users to serve as "backup" in case a primary user was absent from work and information was needed from a microcomputer, and (4) to give all non-users enough knowledge of specific equipment and software to be able to utilize the equipment if they were transferred within the organization or subsequently found job tasks that could be made more efficient with the use of computers.

All twenty-eight of the career service employees who were employed in some clerical/secretarial or accounting function elected to take the computer literacy inservice training. This was virtually 100% of the career service personnel who would be potentially using computers. One-half of the participants were using microcomputers in their jobs on a fairly regular basis at the time of the inservice.

The one credit-hour class was structured so that two different sections of the class would be offered in the late afternoon. Since the college had established a policy of purchasing all IBM PC compatible equipment for administrative purposes, the IBM PC lab and Lotus/Symphony were used as the primary hardware and software programs for the inservice. The course content included a presentation of microcomputer concepts and theory, a basic description of the functions of integrated software packages, and specific instruction on the use of Symphony as a problem-solving tool. The two sections of the computer course for this inservice were less theoretical than those for faculty. Emphasis was placed upon use of the integrated software in each individual's own particular work area. Each person reviewed the spreadsheet, wordprocessing, database management,

graphics, and communications capabilities of the equipment and software.

Inasmuch as the course would entail 15 hours of instruction, primarily hands-on, the extra 5 hours, to make a total of 20 hours, was established as independent study time. After the individuals had completed the 15 hours in the course, they could use the 5 hours to complete a sophisticated project as their primary product for the course.

Evaluation of the Career Service Inservice

An evaluation survey was designed and distributed. A total of 21 of the 28 participants (75 percent) returned the survey. The results of the survey and observational data from work supervisors were utilized to assess the effectiveness of the training.

The perceptual and observational data both support the fact that their was a strong motivation to achieve greater knowledge about the use of microcomputers. The participants were in strong agreement about the effectiveness of the inservice in: (1) increasing the participants' understanding of how microcomputers could generally be used in offices, (2) developing confidence in the use of microcomputers, and (3) understanding how the particular hardware and software available in offices could be used in one's own job. Apparently all of the respondents felt they had developed a greater awareness of the role of microcomputer technology in the modern college office. Supervisors report an increase in the number of discussions they have had with employees about the use of microcomputers to accomplish additional job tasks. Too, there seems to be a strong network of helping each other learn the intricacies of the integrated

software packages being used at the college.

The participants were equally positive about the hands-on format, the use of a stipend for the inservice, and the overall value of the inservice.

Although there was some perceived movement toward greater use of microcomputers after the inservice, the combined number of career service employees who indicated they were using micros "often" or "regularly" increased by only one person, from twelve to thirteen. The direct observations of the employee's supervisors confirmed these same results on the job. Although we must admit that this was at first disappointing news, some reflection on our own experiences in becoming microcomputer users and a review of the scant literature on this subject provided a meaningful interpretation of these findings. The authors' experience supports that of Beach and Lindahl (1984) that a great deal of time is needed to actually "master" the use of a microcomputer software package to perform complex tasks. The twenty hours of training in the inservice was far below the 90 hours of instruction cited by Beach and Lindahl as necessary for complete training. Those participants who came into the inservice as competent users of other software packages were better prepared to extend their skills with a complex integrated software package and did so. Those who came into the inservice as non-users may have improved their basic knowledge, but it now seems overly optimistic to assume they would become regular users after only 20 hours of training.

The responses to the evaluation survey and the observational reports of supervisors support the successfulness of the inservice program. Providing a stipend for the inservice, at the same hourly rate as faculty, demonstrated the

high priority the college placed on becoming more technologically advanced. Those who were computer users going into the inservice seemed to gain the most in actual extended computing capabilities. Others seemed to have gained the knowledge base necessary to learn more about specific equipment and software.

Conclusions

Chipola Junior College, like most other two year colleges, has had to respond quickly to the impact of the microcomputer revolution. A demanding clientele, a faculty and staff unprepared for microcomputer technology, and limited equipment resources have dictated the rules of change. The preceding pages have outlined the response made to this situation. Obviously other institutions will make equally viable choices to survive these difficult years.

The emphasis on short one credit-hour applications computer courses has worked well for the college. The regular students and the community clientele responded to the courses in great numbers. The flexibility of having a few faculty offer the courses to various groups, with a slightly different emphasis, provided flexibility in moving within college curriculum guidelines and a statewide course numbering system.

The computer literacy programs for faculty and career service employees have made a significant first step toward greater sophistication with the new technologies. As a result of these inservice programs, there have emerged some conclusions that seem important to share:

1. The move to make a campus more technologically current has to have

the support of the administration, including financial resources.

2. A series of short applications-oriented courses in computer literacy can provide a viable college response to the needs of the college community.
3. Computer inservice activities can be very formally structured and reach a large percentage of the faculty and career service employees when stipends are offered for the extra work. The incentive money signals the high priority assigned to increasing computer literacy at all levels in the institution.
4. Inservice activities in computer literacy for faculty and staff will not make everyone an overnight computer user. A computer inservice is only the beginning step for those who will become computer users. Hundreds of hours of additional on-the-job training will be needed for each person to develop proficiency in the use of changing equipment and software.

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